REMARKS

The Amendments

Claims 1-8, 10 and 14 are pending.

Claim Rejections – 35 USC §103

Claims 1-8, 10 and 14 remain rejected under 35 U.S.C. §103(a) as being unpatentable over Fabijanski et al. in view of Mason et al. and Chou et al. Applicants respectfully traverse this rejection at least for the following reasons.

In the plant selection strategy as claimed in claims 1 and 14, expression of the first nucleotide sequence is **benign to the plant or portion thereof**. By benign it is meant that the first nucleotide sequence when expressed is non-toxic and confers no adaptive advantage to the plant (see paragraph spanning pages 71-72 of the specification).

As Applicant has previously argued, there is no hint or suggestion in Fabijanski et al. that expression of the first nucleotide sequence (which corresponds to Locus 2 in Fabijanski) is benign to the plant. Instead, Fabijanski et al. actually teaches away from transforming a plant with a first nucleotide sequence containing a first coding region encoding a repressable tag protein, wherein expression of the first nucleotide sequence is benign to the plant. Both constructs in Figure 3 of Fabijanski et al. encode a repressor and they both encode a lethal gene product. As disclosed at column 15, lines 24-38 of Fabijanski et al.:

> *methods and compositions are provided for a novel means of producing transgenic plants that contain two recombinant repressible lethal gene constructs. All plants comprising recombinant DNA resulting from outcrossing of the transgenic plant are rapidly eliminated from the environment. The first repressible lethal gene construct comprises a lethal gene and a repressor gene that blocks the expression of a second repressible lethal gene and optionally a gene encoding a novel trait of interest. The second repressible lethal gene construct comprises a second lethal gene and a repressor gene that blocks the expression of the first repressible lethal gene. Cells containing both genetic constructs produce two types of repressor molecules; hence both lethal genes remain in a repressed state.*

In the present invention, the first nucleotide sequence containing the first coding region encoding a repressable tag protein that is benign to the plant when expressed, can be introduced into a transgenic plant or portion thereof to obtain a plant platform for subsequent transformation with the second nucleotide sequence as is disclosed in Example 5 of the present application. Unlike the system taught in Fabijanski et al., there is no need for both the first and second nucleotide sequences to be introduced into the transgenic plant at the same time to ensure that the first coding region (lethal gene) is repressed to allow the plant to survive.

Applicants respectfully submit that the Office has not provided any grounds to suggest that expression of the first nucleotide sequence encoding a repressable tag protein in Fabijanski et al. is benign to the plant. The Office Action merely states that "[t]he Office contends that the instant claims do not exclude having a second repressor". Applicants agree that the present claims do not exclude having a second repressor, however they specifically define that expression of the first nucleotide sequence is benign to the plant. This feature is not taught or suggested in Fabijanski et al. and as discussed above, Fabijanski et al. actually teaches away from inclusion of this feature therefore it would not have been obvious to a person of skill in the art to modify Fabijanski et al. to arrive at the present invention.

The Office further contends that although the Figure 3 of Fabijanski et al. teach lethal genes, according to Example 5 of Fabijanski et al. the lethal genes include conditional lethal gene such as oncogene 1 and 2 as a selection marker (Example 5, columns 33-35; also Table 1) which is similar to the conditionally lethal gene, iaaH, as disclosed in Example 5 of the instant specification. In addition, Fabijanski et al teach that other conditionally lethal genes can also be used (the paragraph bridging columns 4-5 and column 5 lines 15-31). Therefore, Fabijanski et al. teach a selection strategy that is benign and confers no adaptive advantage to the plant.

Applicants respectfully submit that there is no reference to a conditional lethal gene such as oncogene 1 and 2 in Example 5 or Table 1of Fabijanski et al. Instead Example 5 teaches crossing a plant that contains a repressible seed lethal gene (plant A) with a plant that contains a repressor gene (plant B) to obtain plant C. As shown in Table 1 of Fabijanski et al., and disclosed at column 34, lines 62-65:

> "[n]o plants were recovered that carried a seed lethal gene, proving that without the presence of a repressor no viable plants can be formed from seeds with a seed lethal genotype."

Thus expression of the first nucleotide sequence containing the first coding region encoding a repressable tag protein is **not** benign to the plant, but instead results in a non-viable plant.

The disclosure in Fabijanski et al. regarding other conditionally lethal genes referred to by Examiner (paragraph bridging columns 4-5 and column 5 lines 15-31) is given in the background section of the application. Fabijanski et al. discloses that (column 4, lines 34-40):

> "the development of genes which are conditionally lethal in plants have been described ... [h]owever, methods using these genes have been restricted to the application of a substance that triggers the expression of the lethal phenotype. For wide-spread agricultural practices, these methods have serious limitations."

It is further disclosed in Fabijanski et al (column 5, lines 25-31):

> "[t]he need to apply a chemical to induce the lethal phenotype reduces the utility of a conditionally lethal gene. The widespread application of chemicals may be impractical and raise additional environmental concerns. Accordingly the use of conditionally lethal genes as currently described is not ideally suited for general applications since intervention is required to express the lethal phenotype."

Therefore, although Fabijanski et al. provides a general disclosure of conditionally lethal genes that were known in the art at the time the application was filed, the teaching of Fabijanski et al. is that these conditionally lethal genes have reduced utility, may be impractical and raise environmental concerns. The teaching throughout Fabijanski et al. is that it requires expression of a repressable lethal gene, **not** a conditionally lethal gene.

Example 3 of Fabijanski et al. (column 31, line 45 to column 32, line 32) discloses a plant transformation vector which comprises a repressible lethal gene activity resulting from the combined activity of two genes, oncogene 1 and native oncogene 2. It is disclosed "[w]hen expressed, the two oncogenes in this vector lead to the formation of excess IAA, killing plant cells in which the lethal gene activity is expressed." It is taught in Fabijanski et al. that the Binter vector "containing the Xba I fragment comprising the phaseolin promoter... the coding region of oncogene 1... and the native oncogene 2" is referred to as pGG-2. In Example 4 of Fabijanski et al. (column 32, line 33 to column 33, line 16) tobacco plants are transformed with the vector pGG-2 to obtain plants which comprise a repressible seed lethal gene activity,

"[t]obacco plants that carry the repressible seed lethal gene but do not carry a repressor form seeds that are not viable". Fabijanski et al. therefore teaches that oncogene 1 and oncogene 2 are both expressed on the same nucleotide sequence (equivalent to the first nucleotide sequence of the present invention) and the combined expression of both genes is lethal to the plant. Thus expression of the first nucleotide sequence containing the first coding region encoding a repressable tag protein is **not** benign to the plant, but instead results in a non-viable plant.

Oncogene 1 and oncogene 2 of Fabijanski et al. do not work in the same way as conditionally lethal gene, iaaH as disclosed in Example 5 of the present application. In Example 5 of the present application, the first nucleotide sequence comprises an *iaaH* gene (first coding region) linked to a constitutive promoter altered to incorporate the DNA binding sites (operator sequence) for a transcriptional repressor protein,

> "[w]hen introduced into a transgenic plant, the resultant line is sensitized to IAM exposure, or its analogues, as this chemical is converted to IAA causing aberrant cell growth and eventual death of the plant". As disclosed at page 21, lines 26-29 of the present specification "IAAH (tms2) converts the non-toxic substrates indole acetamide (IAM), or indole napthalacetimide (NAM), to indole acetic acid (IAA; Figure 1), or indole napthal acetic acid (NAA), respectively. The products, IAA or NAA, are toxic at elevated concentrations within a plant or portion thereof".

Therefore, expression of the first nucleotide containing the conditionally lethal gene *iaaH* in Example 5 is benign to the plant, however the plant is sensitized to exposure to the non-toxic substrates indole acetamide (IAM), or indole napthalacetimide (NAM). This is very different to expression of the construct in Fabijanski et al. containing oncogene 1 and oncogene 2, as the combined expression of these genes is lethal to the plant.

The addition of Mason et al. and Chou et al. do not remedy the deficiencies of Fabijanski et al. More specifically, Mason et al. teach transgenic tobacco plants expressing the hepatitis B surface antigen under the control of CaMV 35S promoter and Chou et al. teach the zinc finger gene from *agrobacterium*, ros, and repression of the virC/D and ipt genes by binding of ros to the conserved operator "ros box". However even if the hepatitis B surface antigen of Mason et al. and the ros operator of Chou et al. were combined with the genetic constructs taught by Fabijanski et al., the skilled person would still not arrive at the claimed invention without having recourse to the disclosure of the above-referenced application since, to make the combination,

the skilled person would have to ignore the specific teachings of Fabijanski et al. that the coding sequence encoding the tag protein is a lethal gene, such that expression of the nucleotide sequence containing the coding region for the tag protein results in a non-viable plant. With respect, this is impermissible hindsight reconstruction.

Accordingly, Applicants respectfully submit that the combination of Mason et al. and Chou et al. with Fabijanski et al. do not lead to the claimed invention, particularly in view of Fabijanski et al.'s teaching of providing a lethal gene on each transformation construct. Applicants therefore respectfully request that the rejection to claims 1-8, 10 and 14 under 35 U.S.C. §103(a) be withdrawn.

Double Patenting

Claims 1-8, 10 and 14 remain rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 11 of US Patent Number 7,521,595 in view of Mason et al. The rejection is traversed.

The instant claims are directed to plant selection strategy methods having several method steps. Claim 11 of US Patent Number 7,521,595 is directed to a plant. A method claim is not an obvious variation of a plant claim. A method claim is patentably distinct from a plant claim. Therefore, the double-patenting rejection is improper and should be withdrawn.

CONCLUSION

Applicants believe that the application is now in good and proper condition for allowance. Early notification of allowance is earnestly solicited.

Respectfully submitted,

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